



## DIAGNOSTIC AND PROGNOSTIC VALUE OF ANAMNESIS IN ADOLESCENT GIRLS WITH DISORDERED MENSTRUAL ACTIVITY

**1. Ashurova Nigora Gafurovna**

Received 28<sup>th</sup> Sep 2023,  
Accepted 28<sup>th</sup> Oct 2023,  
Online 2<sup>nd</sup> Nov 2023

Bukhara State Medical Institute,  
Uzbekistan<sup>1</sup>

**Annotation:** This article talks about the most common pathology in adolescent girls' gynecology - menstrual cycle disorder and its causes, and the diagnostic value of the first anthropometric and clinical signs. The diagnostic and prognostic significance of anamnestic data and body mass index in the early detection of menstrual disorders in 272 adolescent girls involved in the study was substantiated using statistically reliable methods.

**Key words:** menstrual cycle, adolescents, body mass index, risk factor, odds ratio.

Among the factors of menstrual cycle disorders, the increasing incidence of obesity in the growing generation occupies a special place. Despite the fact that it is one of the most urgent medical and social problems of our time, adolescent obesity is underreported in the media and is therefore increasingly dangerous. In many countries of the world, the tendency to increase the number of adolescents with obesity has become especially significant in the last decade [1,3,10].

Almost a third (27-32%) of adolescents involved in endocrinological preventive examinations had cases related to derailment of fat metabolism. The prevalence of overweight and obesity among children in the North-Western and Ural regions of Russia was 4-9% in 1995-2005, and 12.9-26.1% in 2008-2018. By 2020, according to the Russian State Statistics Organization, 31.3% of children between the ages of 3 and 13 will be overweight. Obesity will occur in every 9th child, and the figure will be 15% in adolescents aged 14-18 years. [3,4,6].

At the beginning of the 20th century, H. Evans and K. Bishop studied the effect of fatty foods on the level of reproduction in animal feeding. Numerous studies have also proven that the female reproductive system recovers when body weight returns to normal. Similarly, Leventhal and Stein's article discusses the link between obesity and reproductive disorders. [2,5,9,11].

Accordingly, dysregulated gonadotropin secretion, insulin resistance, and hyperinsulinemia underlie menstrual disorders in overweight adolescent girls, which lead to an increase in androgens over time and this condition, in turn, is manifested by a specific appearance of the body structure [7,12].

There is no doubt that ovarian dysfunction in the context of hyperandrogenism (GA) causes chronic anovulation. GA in obese teenage girls is 4-18%. Androgens derail the normalization of the follicle and cause multiple atresia. The increasing concentration of androgens in the ovaries gradually pushes the granulosa cells that produce estrogen out of the ovaries. This leads to hyperplasia of theca cells and luteinization of the ovarian interstitial tissue, which are both considered androgen production sites [2,8,10]. It is understood that the stimulating effect of hyperinsulinemia on ovarian steroidogenesis is manifested in the form of hyperandrogenism.

**Purpose:** to study the diagnostic and prognostic value of anamnesis data in the formation of the reproductive system of teenage girls.

**Materials and styles.** Clinical studies were conducted in the Regional Reproductive Center and in secondary schools of Bukhara city, Kogon, Romitan, Jondor, Bukhara districts during 2019-2023. In a scientific study, a questionnaire was conducted among 1018 11-18-year-old girls in order to evaluate the prevalence of this pathology, the most common forms, possible complications, the effectiveness of traditional treatment tactics, and the analysis of retrospective data. Anamnesis collection was carried out by means of questionnaires and interviews. In addition to the general information of the passport part of the questionnaire, information was collected including the range of special questions such as the age at the onset of the menstrual cycle, its stabilization period, features of remission and recurrence, pain levels, and the results of treatment effectiveness. The participation of the adolescent's parents and the school nurse was ensured when filling out the questionnaire.

The prospective group consisted of 272 girls, 192 teenage girls with menstrual disorders, and 80 conditionally healthy teenage girls were included in the main group. Participants in the experimental and control groups were between the ages of 11 and 17.

#### Distribution of patients by age

Groups	Patients age														Total
	11		12		13		14		15		16		17		
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
Main group	1	0,5	15	7,8	40	20,8	46	24,0	47	24,5	26	13,5	11	5,7	192
Control group	0	0.0	12	15	18	22,5	22	27,5	18	22,5	8	10,0	4	5,0	80

The main group of patients selected for the study was divided into two groups depending on the type of menstrual disorder: the first group - the menstrual disorder in patients is characterized by a decrease in menstruation, a decrease in the duration of menstruation or a decrease in blood loss compared to the physiological norm - hypo menstrual syndrome (n=105), the second group - the opposite, patients with hypo menstrual syndrome (n=87), which is characterized by an increase in menstruation, lengthening of the duration of menstruation, and an increase in blood loss compared to the physiological norm (Table 1).

#### Results and their discussion.

According to the data determined by the objective appearance of the participants of the main and control groups, the type of obesity (android or gynoid) was determined in obese girls using body mass index (BMI), as well as waist circumference and hip circumference. In particular, during the study, among the experimental group of patients, patients with a BMI index of up to 18.5 were 5.6%, patients with a normal BMI were 27%, overweight patients were 38%, patients with first-degree obesity were 25.4%, patients with second-degree obesity were 4%, while these indicators were 12.5%, 31.2%, 37.5%, 15.6% and 3% in the control group, respectively (Table 2).

**Table 2**

**Distribution of subjects of the experimental and control groups according to the indicator of body mass index (BMI).**

Groups	<18,5		18,5-25		25-29,9		30-34,9		35-39,9	
	n	%	N	%	n	%	n	%	n	%
Experimental group	3	1,56	174	90,6	2	1,04	9*	4,68	4	2,08
Control group	1	1,25	77	96,2	2	2,5	0	0,0	0	0,0

Indication: compared to the control group, \* - statistical reliability < 0.05; \*\* - statistical reliability < 0.01; \*\*\* - statistical reliability < 0.001.

In addition, the main group was divided into patient groups according to the type of menstrual disorder - with hypo menstrual and hyper menstrual disorder. The main and the control group participants were divided according to their body weight at birth and the results of the patient groups were compared with each other and the indicators of the control group (see Table 3). According to this table, in both patient groups, birth with relatively low birth weight (<2500 gr) was statistically significantly more frequent ( $p < 0.05$ ) than in the control group, and on the other hand, in the control group, the weight was in the upper limit of normal variation (2500-3500 gr). It was found that the frequency of births was statistically significantly higher ( $p < 0.05$ ). Also, when patient groups were compared, it was found that there were more patients with hyper menstrual syndrome whose birth weight was less than the normal variation (<2000 g) ( $p < 0.05$ ), while among patients with hypo menstrual syndrome, there were more people with a birth weight of 2000-2500 g. ( $p < 0.05$ ).

**Table 3.**

**Distribution of patients and control groups by body weight at birth.**

Types of groups	<2000 gp		2000-2500 gp		2500-3000 gp		>3000 gp	
	n	%	n	%	n	%	n	%
Main group	81***	42,2	100***	52,1	11***	5,7	0***	0,0
Hypo menstrual syndrome	34***^	32,4	67*** ^^	63,8	4***	6,7	0	0,0
Hyper menstrual syndrome	47***	54,0	33*	38,0	7***	8,0	0	0,0

Control group	0	0,0	16	20,0	54	67,5	8	10,0
---------------	---	-----	----	------	----	------	---	------

Indication: compared to the control group, \* - statistical reliability  $< 0.05$ ; \*\* - statistical reliability  $< 0.01$ ; \*\*\* - statistical reliability  $< 0.001$ , compared to the indicators of patients with hyper menstrual syndrome, ^ - statistical reliability  $< 0.05$ ; ^^ - statistical reliability  $< 0.01$ ; ^^^ - statistical reliability  $< 0.001$

Also, the period of birth of patients with menstrual disorders of hypo menstrual and hyper menstrual type and those examined in the control group were compared (Table 4). According to this table, patients with hyper menstrual syndrome did not differ from the control group, on the other hand, among patients with hypo menstrual syndrome, the number of late and premature births was significantly higher than the results of the control group ( $p < 0.05$ ).

Table 4.

#### Distribution of examinees by date of birth.

Groups	Birth at term		Premature birth		Late birth	
	n	%	n	%	n	%
Main group	83***	43,2	88***	45,8	21***	11
Hypo menstrual syndrome	3***^^^	2,86	83***^^^	79,0	19***^^^	18,1
Hyper menstrual syndrome	80	91,9	5	5,75	2	2,3
Control group	77	96,25	2	2,5	1	1,25

Indication: compared to the control group, \* - statistical reliability  $< 0.05$ ; \*\* - statistical reliability  $< 0.01$ ; \*\*\* - statistical reliability  $< 0.001$ , compared to the indicators of patients with hyper menstrual syndrome, ^ - statistical reliability  $< 0.05$ ; ^^ - statistical reliability  $< 0.01$ ; ^^^ - statistical reliability  $< 0.001$

In addition, according to the results of anamnestic and objective examination of patients during our study, hyper menstrual type disorder, hypo menstrual type disorder and control group examiners, respectively, 27.5% ( $n=24$  ( $p < 0.05$ )), 25.70% ( $n=27$  ( $p < 0.05$ )) and 11.25% ( $n=9$ ) thyroid diseases, 22.90% ( $n=20$  ( $p < 0.05$ )), 55.20% ( $n=58$  ( $p < 0.05$ )) and 10.0% ( $n=8$ ) anemia, 13.8% ( $n=12$  ( $p > 0.05$ )), 21.0% ( $n=22$  ( $p < 0.05$ )) and 11.25% ( $n=9$ ) respiratory system diseases, 11.50% ( $n=10$  ( $p > 0.05$ )), 25.70% ( $n=27$  ( $p < 0.05$ )) and 5.0% urinary system diseases, 4.60% ( $n=4$  ( $p > 0.05$ )), 4.76% ( $n=5$  ( $p < 0.05$ )) and 0.0% eye diseases were detected

No difference was found in the indicators of the patient and control groups for the remaining types of diseases

When changes related to the menstrual cycle, in particular, the length of menstrual days and the age of menarche were compared in the main and control groups, and also when the main group patients were regrouped according to the type of menstrual disorder and compared to the control group and each other, the length of menstrual days in patients with hypo menstrual disorder compared to the control group, it was found that it was statistically less reliable, and it was statistically more reliable in patients

with hyper menstrual disorders. On the other hand, the age of menarche was not significantly different between the patient and control groups (see Figure 1).

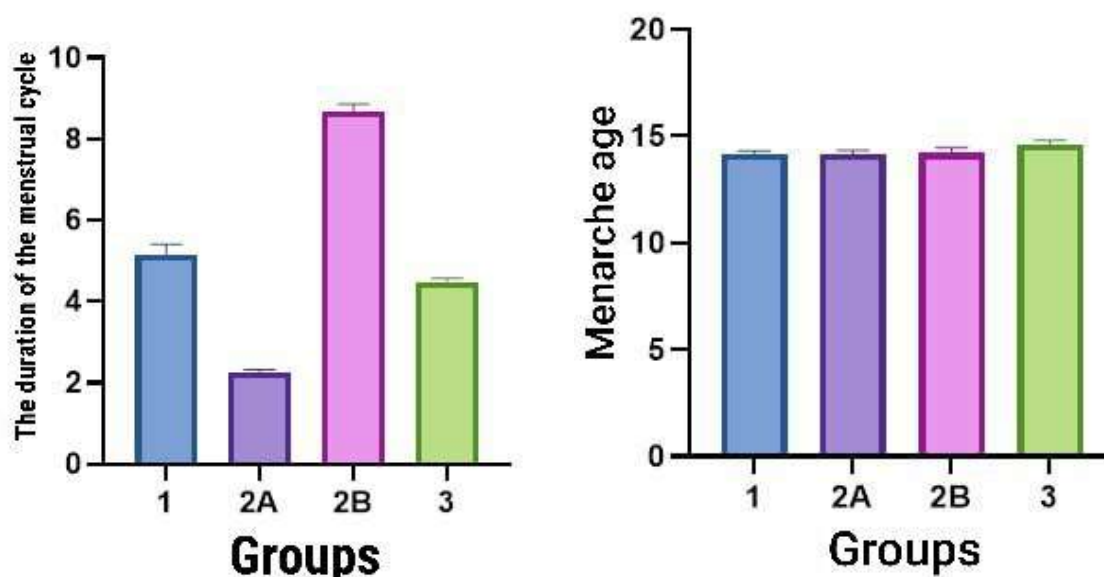


Figure 1. A) Length of menstrual days; B) Menarche age indicators. 1 – Main group; 2A – patients with hypomenstrual syndrome; 2B – patients with hypermenstrual syndrome; 3 – control group. \* - statistical reliability < 0.05; \*\* - statistical reliability < 0.01; \*\*\* - statistical reliability < 0.001

Also, the duration of menarche after being calculated in the patient groups and the control group, and the results were compared between the groups.

According to it, it was found that in almost all participants of the control group, the stabilization of menstrual days after menarche was completed by 12 months, on the other hand, in almost 1/3 of patients of the main group, the duration of the menstrual phase did not stabilize after 12 months ( $p < 0.05$ ).

When patient groups were compared, the number of patients with hypo menstrual syndrome who had stabilization of the menstrual cycle immediately, after 6 months, and after 12 months was significantly higher ( $p < 0.05$ ) compared to hypermenstrual syndrome patients. Among patients with hypermenstrual syndrome, the number of patients whose menstrual cycle did not stabilize even after one year was statistically significant ( $p < 0.05$ ). (see Table 5).

Table 5

**Duration of stabilization of menstrual days after menarche in patient and control groups**

Groups	Very soon		After 3 month		After 6 month		After 6 month		Was not stabilized even after 1 year	
	n	%	n	%	n	%	n	%	n	%
Main group	23 <sup>***</sup>	12	56	29,2	45 <sup>**</sup>	23,4	49 <sup>***</sup>	25,5	19 <sup>***</sup>	9,9
Hypo menstrual syndrome	20 <sup>^^</sup>	19	31	29,5	21 <sup>***</sup>	20	33 <sup>***^^^</sup>	31,4	0 <sup>^^</sup>	0,0



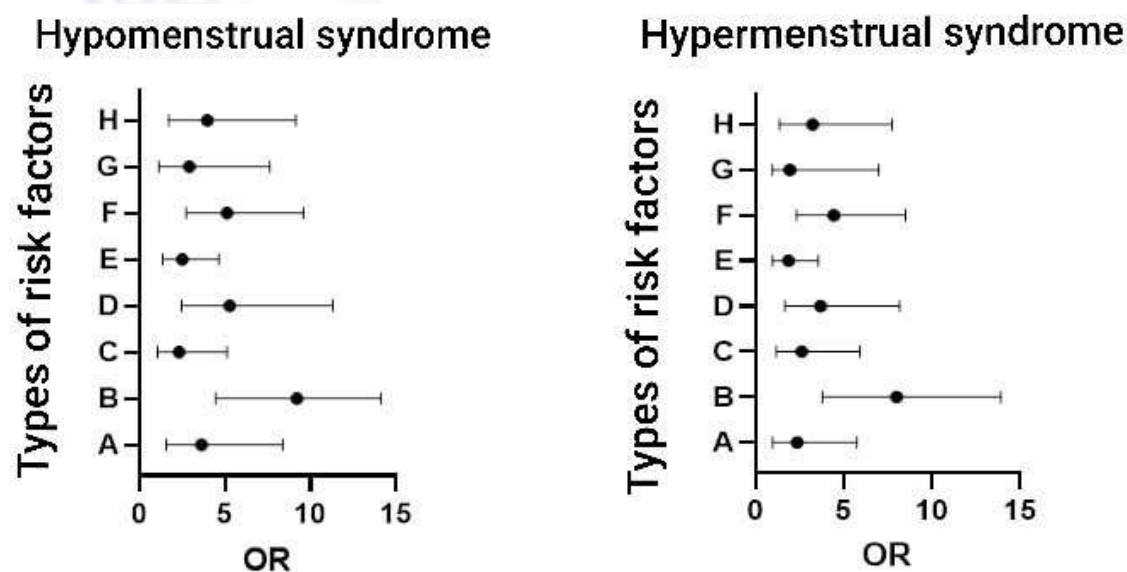
Hyper menstrual syndrome	3	3,4	25	28,7	24	27,6	16	18,4	19	21,8
Control group	23	28,8	23	28,7	32	40	2	2,5	0	0,0

Indication: compared to the control group, \* - statistical reliability  $< 0.05$ ; \*\* - statistical reliability  $< 0.01$ ; \*\*\* - statistical reliability  $< 0.001$ , compared to the indicators of patients with hyper menstrual syndrome, ^ - statistical reliability  $< 0.05$ ; ^^ - statistical reliability  $< 0.01$ ; ^^ - statistical reliability  $< 0.001$

Also, as the main group of patients was grouped into hypo menstrual and hyper menstrual types the frequency of menstrual disorder symptoms was compared too. As expected, in patients with hypo menstrual disorder, statistically reliable, primary amenorrhea ( $p < 0.05$ ), secondary amenorrhea ( $p < 0.05$ ), oligomenorrhoea ( $p < 0.05$ ), oligomenorrhoea ( $p < 0.05$ ), hypomenorrhea ( $p < 0.05$ ) and algodysmenorrhea ( $p < 0.05$ ) were found more often, but in patients with hypermenstrual disorder, pro menorrhea ( $p < 0.05$ ), polymenorrhea ( $p < 0.05$ ) and hypermenorrhea ( $p < 0.05$ ) were found more.

In addition, according to the anamnestic and objective results of the patients during our study, the frequency of occurrence of potential risk factors important in the development of menstrual disorders was compared in the patient and control groups.

According to comparison, almost all factors (except factors such as thinness, mental retardation, chronic insomnia, frequent change of weather and place of residence) are statistically reliably more common in patient groups ( $p < 0.05$ ) (infertility in the mother's anamnesis, Potential risk factors such as menstrual dysfunction, obesity, negative social life factors were statistically significantly more common only in patients with hypomenstrual disorder compared to the control group ( $p < 0.05$ ), these indicators did not differ statistically reliably in patients with hypermenstrual disorder ( $p > 0.05$ )), when the indicators of patients with menstrual disorder of hypomenstrual and hypermenstrual type were compared, it was found that male pattern baldness was more common in patients with hypomenstrual disorder ( $p < 0.05$ ).



**Figure 2.** Factors listed as risk factors for the development of menstrual disorders were listed according to the extimolar ratio index. A - Infertility in the history of the mother, B - Complicated course of pregnancy, C - Complicated course of childbirth, D - Frequent recurrence of ARVI in the patient, E -

Menstrual dysfunction in the mother, F - The presence of euthyroid goiter, G - Negative social life factors, H - Infertility and irrational eating.

Based on the results, statistically reliable common factors, hypo menstrual or hyper menstrual disorders in both patient groups were calculated using the odds ratio (OR) indicator (see Figure 2).

According to it, hypo menstrual type and hyper menstrual type disorders as risk factors that significantly increased the probability of development of pregnancy complications were 9.2 times (95%CI: 4.44-14.1) and 8.0 times (95%CI: 3, 80-13.90), and increased frequent recurrence of ARVI by 5.25 times (95%CI: 2.44-11.3) and 3.68 times (95%CI: 1, 66-8.17), and increased the presence of euthyroid goiter by 5.1 times (95%CI: 2.71-9.57) and 4.43 times (95%CI: 2.31-8.50), respectively.

**Summary.** In the diagnosis of menstrual cycle disorders in adolescent girls, based on anamnesis data, use of special scales, and anthropometric measurements, it is possible to notice deviations in the formation of the reproductive system in the early stages. Subjective and objective results obtained during the study have an incomparable diagnostic and prognostic value in determining potential risk factors that cause menstrual disorders.

#### References:

1. Andreeva V.O., Khoshabi K.E. i dr. Faktory riska formirovaniya ovarialnoy dysfunktsii u podrostkov s ojirinem. //Reproduktivnoe zdorove detey i podrostkov. 2019. T. 15. No. 3. S. 22-32.
2. Akhmedov F.K. biochemical markers of preeclampsia development and criteria for early diagnosis- Art of Medicine. International Medical Scientific Journal, 2022. 10.5281/zenodo.6635595.
3. F.K. Akhmedov. The role of interleukin 10 in the development of preeclampsia: diagnosis and prognosis- British Medical Journal, 2022 Volume-2, No 410.5281/zenodo.6912557
4. Andreeva N.A., Naumenko E.I., Lesnova Ya.A. Vozmozhnye prichiny narusheniy menstrualnoy funktsii u dovechek-podrostkov republic of Mordovia. //Scientific almanac. 2016. No. 1-2 (15). S. 353-358.
5. Svidinskaya E.A., Ageev M.B and dr. Disturbance of menstrual function and girl-child with a massage therapist. (Review literature). Archives of obstetrics and gynecology. V.F. Snegireva. Volume 9, No. 2.2022 g. Str. 93-101.
6. Zakomorina T.S. Otsenka faktorov riska narusheniya menstrualnoy funktsii u sovremennykh devochek-podrostkov. //V sbornike: Molodej 21 veka: shag v budushchee Materialy XIX regional scientific-practical conference. V 3-x tomax. 2018. S. 172-174.
7. Ashurova N.G., Bobokulova S.B. Study of menstrual function in adolescent schoolgirls. Electronic scientific journal "Biology and integrative medicine" No. 6 - November-December (53) 2021.
8. Kirsten JS. Menstruation disorders in adolescents: background, pathophysiology, and etiology. Medscape. 2017.
9. Igbokwe And UC, John-Akinola YO. Knowledge of menstrual disorders and health-seeking behavior among female undergraduate students of the university of Ibadan, NIGERIA. Ann Ib Postgrad Med. 2021 Jun;19(1):40-48. PMID: 35330885; PMCID: PMC8935669.

10. Ashurova N. G., Bobokulova S. B., Zaripova D. Y. Characteristics of clinical and laboratory changes in women with hyperandrogenic// Chinese Journal of industrial hygiene and occupational diseases, 2022 P.-413-420.
11. Bobokulova S. B., Ashurova N. G., Ibodov B. The importance of genetic markers in the diagnosis of hyperandrogenic syndrome in women of reproductive age// British Medical Journal, 2023. Volume-3, No 2..P.15-21.
12. Bobokulova S. B., Ashurova N. G. Of reproductive age development of hyperandrogenism syndrome in women the pathogenesis of changes in the CYP21A2 genetic significance \\Journal Of Theoretical And clinical Medicine, №2, 2023.P.-136-140.

CENTRAL ASIAN  
STUDIES